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AUG 28 2008

REMARKS/ARGUMENTS

Applicants respectfully request reconsideration and allowance of this application in view of the amendments above and the following comments.

At the outset, Applicants point out that they have replaced main claim 1 by new claim 27, which Applicants believe will make clearer the departure of the claimed invention from the cited prior art. Applicants do not believe that new claim 27 introduces any new matter. In this regard, Applicants point out the support for new claim 27 as follows:

<u>Limitations of Claim 27</u>	<u>Support in the Instant Specification</u>
A separation module comprising at least one bundle comprising a plurality of ceramic capillaries,	See, for example, the Summary of the Invention: "This object is achieved by a separation module which comprises at least one bundle of ceramic capillaries ..." The plural form "capillaries" indicates that the bundle comprises a plurality of such capillaries.
the plurality of ceramic capillaries arranged in parallel and joined together by one or more film strips,	As shown in Figure 7a, and discussed in Example 5 on page 14 of the specification, the plurality of capillaries 9 are arranged in parallel and joined together, in this embodiment, by film strips 13.
the one or more film strips pressed at least partially around and connecting adjacent capillaries,	As shown in Figure 7b, and discussed at page 14, lines 5-6, the film strips are pressed at least partially around adjacent capillaries, connecting them.
the plurality of ceramic capillaries and one or more film strips being wound into said at least one bundle,	As shown in Figure 8, and discussed at page 14, lines 6-7, the combination of capillaries and film strips is wound into a bundle.

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the one or more film strips when wound into said at least one bundle functioning as baffle plates,	As discussed at page 14, lines 7-11, because the film strips have a thickness, when they are wound up with the capillaries to form the bundle, they separate the layers of respective windings due to their thickness, which results in channels being formed between layers of capillaries. In this configuration, in addition to acting as layer separators, the film strips also function as baffle plates "so that meander-flow can subsequently take place through the module."
each of said capillaries in the bundle having an external diameter ranging from 0.3 mm to 10 mm and an internal diameter ranging from 0.1 mm to 8 mm,	See original claim 3.
each of said capillaries in the bundle being spaced apart from an adjacent capillary in the bundle by a defined distance established by said one or more film strips,	See, for example, page 14, lines 13-14, "the capillaries of the bundle are held the correct distance apart by the strips." See, also, once again, Figure 7a.
and an end of each of said capillaries passing through an end plate at a defined distance from an end of an adjacent capillary also passing through said end plate.	See, for example, Figure 8, showing the ends of the respective parallel capillaries passing through two end plates (not numbered) with the same distance of separation between the capillaries as in the middle space between the end plates.

New claim 28 is drawn to process of producing said separation module by building said at least one bundle. New claim 28 is believed to be supported by the same passages of the specification that support claim 27.

Amendments have been made to the other claims under consideration to make them consistent with new claim 27.

Amendments have also been made to withdrawn claims 18-25 to facilitate their rejoinder

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in anticipation of the allowance of claim 27.

Applicants do not believe that any of the amendments introduce new matter. An early notice to that effect is earnestly solicited.

Claim 1 was rejected under 35 USC § 112, second paragraph, as being indefinite. In response, as noted above, Applicants have replaced claim 1 by new claim 27. Claim 27 makes clear that “the one or more film strips when wound into said at least one bundle [function] as baffle plates.” As noted above, page 14, lines 7-12, in the specification discuss the phenomenon.

When the two dimensional construct depicted in 7a is wound, the thickness of the film strips acts like a spacer providing space between respective wound layers of capillaries. This creates a channel between the respective wound layers through which substances can flow. The film strips, by virtue of their thickness, also interrupt the smooth flow to some degree and, thereby, act as baffles, the result being that meandering flow through the module can subsequently take place.

Applicants respectfully submit that new claim 27 would be clear to persons skilled in the art and, therefore, is not indefinite. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Claims 1, 4, 5, 8-11 and 26 were rejected under 35 USC § 103(a) as being obvious over Kalthod et al. (“Kalthod”), US 5,779,897, in view of McGinnis et al. (“McGinnis”), US 3,690,465, and further in view of Prasad et al. (“Prasad”), US 5,352,361. In response, Applicants respectfully submit that the cited combination of references does not make out a *prima facie* case of obviousness. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw this rejection as well.

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The Examiner contends that Kalthod teaches a fluid separation module comprising a bundle of ceramic capillaries in the range of diameters of Applicant's capillaries. Besides from the deficiencies of Kalthod correctly conceded by the Examiner, the Examiner also fails to note that Kalthod not only fails to teach that a distance is established, but Kalthod additionally fails to teach that said distance is established by the one or more film strips as required by the instant claims.

Kalthod teaches a random distribution of filaments (28) amongst the capillaries (see also title of Kalthod). No disclosure with regard to the distance between the capillaries can be found in the Kalthod reference, except as depicted in Kalthod's Figures 1 to 3. Therein the distance between the capillaries is as random as that of the filaments (see Fig. 3).

It is therefore not understood how someone ordinary skilled in the art, given Kalthod taken alone or in view of the other cited references, should derive the instantly claimed requirement that each capillary is arranged a defined distance from an adjacent capillary and further that the defined distance is established by the one or more film strips used to connect them.

The Examiner combines the teaching of Kalthod with that of McGinnis to prove that it was known to wind the capillaries into a bundle and to join the end of said bundle of capillaries in an end plate through which the capillaries protrude.

The Examiner refers to an automated fabrication method disclosed by McGinnis, citing col. 14, lines 12-15. This method uses the apparatus disclosed in Fig. 1, which winds endless filaments (14) around a web (31) (see also col. 14, lines 40-42). To facilitate safe winding the

filaments need to be kept under a certain elongation tension by means of brake (66a) and guide (70) to ensure winding without wrapping of the filaments.

If one were to apply said method to ceramic capillaries in a sintered state, such winding would certainly result in immediate breakage of said capillaries. No sintered ceramic could be wound by 180° as disclosed by McGinnis (see col. 12, lines 62-67 and col. 14 lines 24-26).

If one were to apply this method to ceramic capillaries in a non-sintered state, the above mentioned essential elongation tension would certainly yield a breakage of the capillaries as well. Therefore the McGinnis teaching applies only to the disclosed polymeric materials to be used in his method (See Table 1).

It should be noted that the disclosure in the Kalthod reference, cited by the Examiner (col. 5, lines 6-8), relates to a method of unwinding, not to method of winding, and that furthermore said disclosure is said to be necessarily done under controlled tension, which is read by the ordinary skilled in the art requiring care to avoid breakage.

Furthermore, the tension applied on the capillaries according to the Kalthod disclosure is at maximum a controlled elongation and a slight torsion tension. This is entirely different from the tension applied on capillaries in accordance to the McGinnis method, which relies on applying extensive bending tension (180°) and an elevated elongation tension.

Therefore, any possibility of winding as disclosed in the McGinnis reference is based upon the properties of the materials disclosed therein to withstand extensive bending tension without breakage. Hence any teaching of methods for fabrication disclosed in the McGinnis

reference cannot be transferred to the disclosure of the Kalthod reference to finally arrive at Applicants' claimed invention.

Even if one would still consider such transfer applicable, the McGinnis reference still relies on application of a web material which should preferably be rather thin (see col. 7, lines 14-19) and furthermore permit flow through it (see col. 7, lines 26-28). Thereby the foraminous material of McGinnis cannot be considered to be or act as film strips according to Applicants' claimed invention, which forms another significant discrepancy between Applicants' claimed invention and the combined teachings of the Kalthod and McGinnis reference.

Additionally, the requirement of the instant claims that the film strips be "pressed at least partially around" adjacent capillaries is neither disclosed nor taught by either the Kalthod reference or by the McGinnis reference. The McGinnis reference teaches an attachment using adhesives after having wound the filaments around the foraminous material (see col. 13, lines 33-46) or for the purpose of holding the ends of the filaments in place (see col. 14, lines 12-15). Alternatively the McGinnis reference teaches use of roughened foraminous material to avoid displacement of said filaments (see col. 6, line 65 to col. 7, line 13).

This again underlines the fact that said foraminous material cannot be considered to be or act as a film strip according to Applicants' claimed invention, even though Applicant discloses the possibility of using adhesives as well (see for example the withdrawn Claim 19). Despite of the fact that use of adhesives is disclosed in Applicants' application as well, the avoidance of displacement of Applicants' capillaries is achieved by employing a positive fitting of said capillaries with the film strips by "[pressing] at least partially around" the capillaries, while the

McGinnis reference teaches either a friction based or adhesive based approach, which is distinct.

Therefore, even if someone ordinary skilled in the art should desire to overcome the deficiencies of Kalthod, the McGinnis reference does not help to overcome the stated discrepancies between Applicants' claimed invention and the Kalthod reference to the extent the Examiner argues it would. In short, Applicants respectfully submit that for the foregoing reasons the combination of Kalthod and McGinnis would not have rendered the claimed invention *prima facie* obvious to persons skilled in the art.

The Prasad reference does not bridge the gap between the combination of Kalthod + McGinnis and the instant claims. Therefore, the combination of Kalthod, McGinnis and Prasad also fails to have rendered the claimed invention *prima facie* obvious to persons skilled in the art.

With regard to the Prasad reference, the Examiner notes that it might be used to overcome the discrepancies between the combined teaching of the Kalthod and McGinnis references, which the Examiner contends to be lack of disclosure for attaching film strips while capillaries are parallel and for the film strips to define a distance between the individual capillaries in the bundle, whereby the film strips also form baffle plates within the bundle.

The Examiner refers to col. 2, lines 28-30 for proving the existence of baffle plates.

Neglecting the additional discrepancies outlined before and considering the Examiners' argumentation up to that point as being valid, purely as an academic exercise, such disclosure of the Prasad reference would not enable someone ordinary skilled in the art to arrive at Applicants' claimed invention, as said baffle plates (3a) cannot be formed by film strips as in Applicants'

claimed invention, as Prasad's baffle plates are "disc-shaped" (see col. 9, lines 14-15).

Further, the fact that baffle plates exist does not teach or suggest the use of film strips to join parallel arranged capillaries as claimed, and then to wind the combination of joined capillaries and film strips in such a way that the film strips are transformed into functioning baffle plates. Such an idea cannot be gleaned from Prasad's disclosure. Accordingly, the combination of Kalthod, McGinnis and Prasad still does not achieve the presently claimed invention.

In view of the argumentation above and in further view of the lack of disclosure of "pressing into" in the Prasad reference, such reference cannot help to overcome the major discrepancies between Applicants' claimed invention and the combined disclosure of Kalthod in view of McGinnis. In view of the foregoing, Applicants respectfully submit that this rejection is not proper. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Claims 2, 6, 7 and 12 were rejected under 35 USC § 103(a) as being obvious over Kalthod in view of McGinnis and further in view of Prasad and further in view of Taketomo, US 4,671,809. In response, Applicants respectfully point out that this rejection was dependent upon the combination of Kalthod, McGinnis and Prasad making out a *prima facie* case of the obviousness of the main claim, which Applicants have shown above is not, in fact, the case. There is nothing in Taketomo that overcomes the deficiencies in the combination of Kalthod, McGinnis and Prasad. Accordingly, Applicants respectfully submit that the combination of Kalthod, McGinnis, Prasad and Taketomo likewise fails to make out a *prima facie* case of the

obviousness of the rejected claims.

Furthermore, Applicants once again respectfully point to the fact that Fig. 10 and col. 1, lines 50-55, does not relate to the invention of the Taketomo reference, but rather pertain to the prior art discussed by Taketomo. Therefore, Applicants doubt that such disclosure will be read by someone having ordinary skill in the art as providing essential features to improve any idea that could possibly arrive at Applicants' claimed invention. This especially holds true, as the further part of the Taketomo reference cited by the Examiner (col. 2, lines 5-20) explicitly outlines the problems associated with the alleged preferable embodiment of Fig. 10 comprising a "close packing". Therefore, the Taketomo reference does not help to overcome the discrepancies between the combined disclosures of Kalthod, McGinnis and Prasad and Applicants' claimed invention, even if the Examiner's arguments up to that point were taken as true and proven.

In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw this rejection as well.

Claims 13 and 14 were rejected under 35 USC § 103(a) as being obvious over Kalthod in view of McGinnis and further in view of Prasad and further in view of Shay, US 4,310,607. In response, Applicants respectfully point out that this rejection was dependent upon the combination of Kalthod, McGinnis and Prasad making out a *prima facie* case of the obviousness of the main claim, which Applicants have shown above is not, in fact, the case. There is nothing in Shay that overcomes the deficiencies in the combination of Kalthod, McGinnis and Prasad. Accordingly, Applicants respectfully submit that the combination of Kalthod, McGinnis, Prasad and Shay likewise fails to make out a *prima facie* case of the obviousness of the rejected claims.

Shay pertains to "battery cell construction" (see title of the application). Applicants doubt

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that the artisan in the field of separation technology would rely on any teaching in that field of science.

Even if said artisan would refer to the Shay reference in spite of it being in a different field of endeavor, the Shay reference does still not help to overcome the discrepancies remaining from the combined teachings of Kalthod, McGinnis and Prasad as developed above, as neither disclosure of film-strips, nor pressing capillaries into said film strips while they are parallel can be found in the teaching of the Shay reference.

In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw this rejection as well.

Claim 15 was rejected under 35 USC § 103(a) as being obvious over Kalthod in view of McGinnis and further in view of Prasad and further in view of Bellhouse, US 6,217,764. In response, Applicants respectfully point out that this rejection was dependent upon the combination of Kalthod, McGinnis and Prasad making out a *prima facie* case of the obviousness of the main claim, which Applicants have shown above is not, in fact, the case. There is nothing in Bellhouse that overcomes the deficiencies in the combination of Kalthod, McGinnis and Prasad. Accordingly, Applicants respectfully submit that the combination of Kalthod, McGinnis, Prasad and Bellhouse likewise fails to make out a *prima facie* case of the obviousness of the rejected claim.

Furthermore the Applicants respectfully point out that the teaching in Bellhouse at col. 1, lines 27-29, does not relate to the invention of the Bellhouse reference, but rather pertains to the prior art discussed by Bellhouse. Therefore, the Applicant doubts that such disclosure would be read by someone having ordinary skill in the art as providing essential features to improve any

idea that might achieved Applicants' claimed invention. This especially holds true, as the a further reading of the Bellhouse reference after the cited part explicitly outlines the problems associated with the alleged preferable embodiment of col. 1, lines 27-29. Therefore, the Bellhouse reference does not help to overcome the discrepancies between the combined teachings of Kalthod, McGinnis and Prasad and Applicants' claimed invention, even if the Examiner's argument up to that point were true and proven.

Furthermore a ceramic housing as disclosed by the Bellhouse reference could not possibly overcome the distinctions between the disclosures of the Kalthod et al., of McGinnis et al. and Prasad et al. references as pointed out above.

In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw this rejection as well.

Claim 16 was rejected under 35 USC § 103(a) as being obvious over Kalthod in view of McGinnis and further in view of Prasad and further in view of Dobo, US 4,268,278. In response, Applicants respectfully point out that this rejection was dependent upon the combination of Kalthod, McGinnis and Prasad making out a *prima facie* case of the obviousness of the main claim, which Applicants have shown above is not, in fact, the case. There is nothing in Dobo that overcomes the deficiencies in the combination of Kalthod, McGinnis and Prasad. Accordingly, Applicants respectfully submit that the combination of Kalthod, McGinnis, Prasad and Dobo likewise fails to make out a *prima facie* case of the obviousness of the rejected claim.

Again, Applicants respectfully point out that Dobo's teaching at col. 1, lines 1-65, does in general not relate to the invention of the Dobo reference, but rather pertains to the prior art and physical effects prevailing with regard to membrane diffusion. Furthermore, no disclosure of a

separation module comprising a catalyst can be found within col. 1, lines 1-65.

Applicants suppose that the Examiner's statement in this regard is related to the discussion of the prior art (US 1,174,631), disclosing that metals (e.g. palladium, platinum) might be maintained as a film on a porous earthenware support. The disadvantages of such prior art are further disclosed as well (see col. 2, lines 1-13) and persons skilled in the art would not have been motivated to use such embodiments.

Therefore, the Dobo reference does not help to overcome the discrepancies between the combined teachings of Kalthod, McGinnis and Prasad and Applicants' claimed invention, even if the Examiner's argument to that point were true and proven.

In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw this rejection as well.

Applicants believe that the foregoing constitutes a bona fide response to all outstanding objections and rejections.

Applicants also believe that this application is in condition for immediate allowance. However, should any issue(s) of a minor nature remain, the Examiner is respectfully requested to telephone the undersigned at telephone number (212) 808-0700 so that the issue(s) might be promptly resolved.

Early and favorable action is earnestly solicited.

Respectfully submitted,

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